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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/967,177	09/28/2001	Dallas J. Bergh	01RE099 ALBR:0099	5935

7590 03/22/2006

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EXAMINER	
NGUYEN, DANNY	

ART UNIT	PAPER NUMBER
2836	

DATE MAILED: 03/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/967,177	BERGH ET AL.
	Examiner	Art Unit
	Danny Nguyen	2836

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 January 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 1/10/2006 have been fully considered but they are not persuasive.

Regarding claims 1, 11, 19, applicant argued that White and Nevo fail to disclose a leakage current suppression circuit is configured to ... conduct leakage current into the control circuit. The argument is not persuasive. For instance, White discloses a leakage current suppression circuit (such as circuit 32 in figure 1) is configured to conduct a leakage resistance in the electrical system 12, which has a corresponding to a leakage current in the system 12 into the control circuit 10. If the leakage current of the system 12 is above a predetermined leakage current threshold of the system 12, the output signal of comparator 108 will energize the relay 110 (col. 3, lines 44-47, col. 6, 7, lines 65-30).

Further, applicant argued that White and Nevo fail to disclose controlling a conductive state of a solid state switch in series with a relay coil such that the coil is energized if a current level of an input control signal is above a predetermined input leakage threshold level. Examiner respectfully disagrees with applicant's arguments. White teaches controlling conductive state of a relay coil (relay coil 133) such that the coil is energized if a current level of an input control signal is above a predetermined input leakage threshold level (e.g. a current level of an input control signal of the control circuit 32 is above a predetermined threshold level, col. 6, 7, lines 65-30). Nove discloses a solid-state switch (28), which is coupled to the output of the comparator 21,

is connected in series with the relay coil (coil K). Therefore, applicant's arguments with respect to claim 34 do not overcome the combination of White and Nevo.

Regarding claim 29, applicant argued that White, Nevo and Gernhardt fail to disclose a leakage current suppression circuit is configured to ... conduct leakage current into the control circuit. The argument is not persuasive. For instance, White discloses a leakage current suppression circuit (such as circuit 32 in figure 1) is configured to conduct a leakage resistance in the electrical system 12, which has a corresponding to a leakage current in the system 12 into the control circuit 10. If the leakage current of the system 12 is above a predetermined leakage current threshold of the system 12, the output signal of comparator 108 will energize the relay 110 (col. 3, lines 44-47, col. 6, 7, lines 65-30).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-28, 34-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over White (USPN 4,159,501) in view of Nevo (USPN 6,522,033).

Regarding claims 1, 2, 9, 10, 34, 35, 36, White discloses control circuit (10) for an electrical relay (e.g. see fig. 1), the circuit comprises a relay operator (110) to control energization of the relay operator; and a leakage current suppression circuit (e.g.

resistor 125, resistor 122, and a comparator of circuit 32) configured to be coupled electrically in parallel with the relay (110) to conduct leakage current leaking into the control circuit (10) to energize the relay operator when a control signal current level is above a leakage current threshold, and to de-energize the relay operator when the control signal level is below a leakage current threshold (col. 4, lines 44-50, col. 7, lines 3-45). White does not disclose a solid-state switch as claimed. However, providing a solid-state switch, which is coupled to a relay, is well known in the art. Nevo discloses a protection circuit comprise a leakage current detector (21) is coupled in parallel with a solid-state switch (28) which is connected in series with the relay (K). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the leakage current detector of White to incorporate the solid state switch as disclosed by Nevo because the solid state switch are cheaper, easily integrated, more reliable and has better performance.

Regarding claims 3, 5, 6, 37, White discloses a signal conditioning circuit (104 and 106) (col. 7, lines 63-68).

Regarding claim 4, White discloses a rectifier circuit (40) for converting AC control signal (18) to DC control signals (col. 5, lines 30-32).

Regarding claims 7, 8, 15, 16, 38, White discloses a visual indicator (116).

Regarding claims 11, 12, 17, 18, White discloses control circuit (10) for an electrical relay (e.g. see fig. 1) comprises a rectifier circuit (40) for converting AC control signal (18) to DC control signals (col. 5, lines 30-32), a DC bus (72 and 74) for receiving the DC signal, a control signal condition circuit coupled to the DC bus for conditioning

the DC signal (104 and 106) (col. 7, lines 63-68), a leakage current suppression circuit (e.g. 122, 125, and a comparator of circuit 32) configured to be coupled electrically in parallel with the relay (110), the leakage circuit suppression circuit being operative to conduct leakage current leaking into the control circuit (10) to place the switch in a conducting state and thereby to energize the relay operator when a control signal current level is above a leakage current threshold, and to de-energize the relay operator when the control signal level is below a leakage current threshold (col. 4, lines 44-50, col. 7, lines 3-45). White does not disclose a solid-state switch as claimed. However, providing a solid-state switch, which is coupled to a relay, is well known in the art. Nevo discloses a protection circuit comprise a leakage current detector (21) is coupled in parallel with a solid-state switch (28) which is connected in series with the relay (K). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the leakage current detector of White to incorporate the solid state switch as disclosed by Nevo because the solid state switch are cheaper, easily integrated, more reliable and has better performance.

Regarding claims 13, 14, White discloses a signal conditioning circuit (104 and 106) (col. 7, lines 63-68).

Regarding claims 19, 20, 27, 28, White discloses a control circuit for an electrical relay (fig. 1), the circuit comprises a relay (110), a leakage current suppression circuit (e.g. 122, 125, and a comparator of circuit 32) configured to be coupled electrically in parallel with the relay, the leakage circuit suppression circuit being operative to conduct leakage current leaking into the control circuit (10) to energize the relay operator when a

control signal current level is above a leakage current threshold, and to de-energize the relay operator when the control signal level is below a leakage current threshold (col. 4, lines 44-50, col. 7, lines 3-45). White does not disclose a solid-state switch as claimed. However, providing a solid-state switch, which is coupled to a relay, is well known in the art. Nevo discloses a protection circuit comprise a leakage current detector (21) is coupled in parallel with a solid-state switch (28) which is connected in series with the relay (K). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the leakage current detector of White to incorporate the solid state switch as disclosed by Nevo because the solid state switch are cheaper, easily integrated, more reliable and has better performance.

Regarding claim 23, White discloses a rectifier circuit (40) for converting AC control signal (18) to DC control signals (col. 5, lines 30-32).

Regarding claims 24, 25, 26, White discloses a signal conditioning circuit (104 and 106) (col. 7, lines 63-68), and a visual indicator (116).

3. Claims 29-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gernhardt et al (USPN 5,864,455) in view of White (USPN 4,159,501), Nevo (USPN 6,522,033). Gernhardt discloses terminal block relay assembly (such as fig. 1) comprises a terminal block including input terminals (26 and 28), output terminals (38 and 40), a bay (such recess 98) for receiving a relay (16), and connections (304 and 314) for routing signals between the terminals and the relay; a relay disposed in the bay and coupled to the connections, the relay having an operator (19); a circuit board (14) supported in the terminal block and coupled to the input terminals and to the relay

operator via two of the connections (via conductors 30 and 36 and 42 and 44), but Gerhardt does not disclose the leakage current protection as claimed. White discloses control circuit (10) for an electrical relay (e.g. see fig. 1) comprises a relay operator (110) to control energization of the relay operator; and a leakage current suppression circuit (e.g. 122, 125, and a comparator of circuit 32) configured to be coupled electrically in parallel with the relay (110) to conduct leakage current leaking into the control circuit (10) to energize the relay operator when a control signal current level is above a leakage current threshold, and to de-energize the relay operator when the control signal level is below a leakage current threshold (col. 4, lines 44-50, col. 7, lines 3-45). The combination of Gernhardt and White do not disclose a solid-state switch as claimed. However, providing a solid-state switch, which is coupled to a relay, is well known in the art. Nevo discloses a protection circuit comprise a leakage current detector (21) is coupled in parallel with a solid-state switch (28) which is connected in series with the relay (K). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the leakage current detector of Gernhardt and White to incorporate the solid state switch as disclosed by Nevo because the solid state switch are cheaper, easily integrated, more reliable and has better performance.

4. Claim 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over White in view of Nevo, and Gernhardt et al. White and Nevo disclose all limitations of claim 19 as discussed above, but do not disclose the relay and the switch are supported as claimed. Gerhardt discloses a leakage current protector (fig. 1 and fig. 10) comprises the relay (16) and the switch (e.g. 232) are supported on the circuit board (14) and on a

terminal block (e.g. terminal block shown in fig. 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the elements of protection circuit of White and Nevo to incorporate the relay and the switch are supported on the circuit board as taught by Gernhardt in order prevent components from being damage.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Danny Nguyen whose telephone number is (571)-272-2054. The examiner can normally be reached on Mon to Fri 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (571)-272-2058. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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3/7/2006

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